From glowbugs@theporch.com Thu Feb 27 19:03:05 1997
Return-Path: <glowbugs@theporch.com>
Received: from uro (localhost.theporch.com [127.0.0.1])
          by uro.theporch.com (8.8.5/AUX-3.1.1)
          with SMTP id TAA18392;
          Thu, 27 Feb 1997 19:02:15 -0600 (CST)
Date: Thu, 27 Feb 1997 19:02:15 -0600 (CST)
Message-Id: <199702280102.TAA18392@uro.theporch.com>
Errors-To: ws4s@infoave.net
Reply-To: glowbugs@theporch.com
Originator: glowbugs@theporch.com
Sender: glowbugs@theporch.com
Precedence: bulk
From: glowbugs@theporch.com
To: Multiple recipients of list <glowbugs@theporch.com>
Subject: GLOWBUGS digest 459
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas
X-Comment: Please send list server requests to listproc@theporch.com
Status: O

GLOWBUGS Digest 459

Topics covered in this issue include:

  1) Re: Going to a boring social function? Take a schematic along..
     by "Brian Carling" <bry@mail1.mnsinc.com>
  2) Museums and MFG stuff (from the GLOWBUGS group)
     by "Brian Carling" <bry@mail1.mnsinc.com>
  3) Re: Tube prices
     by "Brian Carling" <bry@mail1.mnsinc.com>
  4) parts supplier
     by leeboo@ct.net (Leon Wiltsey)
  5) Re: Museums and MFG stuff (from the GLOWBUGS group)
     by "Dale Allen" <dallen@fallschurch.esys.com>
  6) Magnet wire by the (small) spool
     by jeffd@coriolis.com (Jeff Duntemann)
  7) Re: Going to a boring social function? Take a schematic along..
     by Jeffrey Herman <jeffreyh@hawaii.edu>
  8) Re: Going to a boring social function? Take a schematic alo
     by "Brian Carling" <bry@mail1.mnsinc.com>
  9) More Regenerator Musings.....
     by rdkeys@csemail.cropsci.ncsu.edu
 10) Re: More Regenerator Musings.....
     by Conard Murray <ws4s@InfoAve.Net>
 11) Re: Going to a boring social function? Take a schematic along..
     by Steve Simpson <Steve@chubs.demon.co.uk>

Date: Thu, 27 Feb 1997 07:18:41 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: Jeffrey Herman <jeffreyh@hawaii.edu>
Subject: Re: Going to a boring social function? Take a schematic along..
Message-ID: <199702271218.HAA22463@news2.mnsinc.com>

On 25 Feb 97 at 22:19, Jeffrey Herman spoke about Going to a boring
social function? and said:

> After those hours studying its schematic, I got to know my HW-16
> a bit better Sunday night. Sure makes a radio more fun to operate
> when you know its "insides" almost by heart.

And of course the GREAT thing about the HW-16 is that it has QSK!
Something I WISH my FT-840 had!
****
*** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com   *
*** See the great ham radio resources at: *
** http://www.mnsinc.com/bry/   *
****

Date: Thu, 27 Feb 1997 07:22:13 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: BOB DUCKWORTH <bob@atl.org>
Subject: Museums and MFG stuff (from the GLOWBUGS group)
Message-ID: <199702271221.HAA22508@news2.mnsinc.com>

On 26 Feb 97 at 5:07, BOB DUCKWORTH spoke about MFG stuff and said:

> For your inspiration & enlightenment:
>
> On Wed, 19 Feb 97 13:53:14 GMT, dallen@melpar.esys.com (Dale Allen)
> inscribed eloquently:
>
> |>Just to add my $.02, Ken Rad (Tube mfr. in KY sold out to GE who
> |>sold out to MPD) facilities were closed in May 1993 when MPD made
> |>the last 6550. MPD agrred to keep the equipment in storage until
> |>a museum could be built by the city.
> |>   Dale
>
> (Now who will build the museum? - Bry)
>
>
> If they will put it in Atlanta, I've just finished setting up

> a 5013(c) and am going to negotiate a lease on 11,000 sq ft
> today! I only need about 1/2 of the space. Who to call????
> If this stuff can be put back to work?????
>
> -bob
>

Contact Dale Allen! His address is right there in the message above!
Maybe he will know!

Bry
****
*** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com   *
*** See the great ham radio resources at: *
** http://www.mnsinc.com/bry/   *
****

Date: Thu, 27 Feb 1997 07:27:39 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: Cesare Lavazza <iw2kpu@radionostalgia.net>, iw2kpu@radionostalgia.net,
Subject: Re: Tube prices
Message-ID: <199702271227.HAA23126@news2.mnsinc.com>

On 26 Feb 97 at 14:34, Cesare Lavazza spoke about Tube prices and
said:

> Is is possible to find tube prices over the Net?

Yes indeed Cesare!

Take a look at:

http://www.mnsinc.com/bry/hamfiles.htm

and click on TUBES

ALSO - take a look at:

http://www.mnsinc.com/bry/hamlynx/hamtube.htm

I think some of these guys have prices listed on the web sites.
Also you can mail off for them by e-mail or postal service & get
lists with prices from the guys.

AES has a catalog as do some others.

Date: Thu, 27 Feb 1997 08:54:20 -0500 (EST)
From: leeboo@ct.net (Leon Wiltsey)
To: GLOWBUGS@theporch.com
Subject: parts supplier
Message-ID: <199702271354.IAA02051@blue.ct.net>

live in small town ,need to know name
of company selling vacuum tube sockets
and maybe even some tubes, audio chokes
and transformers, closest city Tampa but none there.

Thank the good LORD for all that you have!!!

Leon B Wiltsey jr. (Lee)

67yr old semi disabled senior
(stroke got my balance and coordination)
play keyboard and sing
music 1920's to 60'
none of the 80"S- 90's noise

Date: Thu, 27 Feb 1997 08:55:11 -0400
From: "Dale Allen" <dallen@fallschurch.esys.com>
To: bry@mnsinc.com, BOB DUCKWORTH <bob@atl.org>
Cc: glowbugs@theporch.com
Subject: Re: Museums and MFG stuff (from the GLOWBUGS group)
Message-ID: <970227085512.ZM4351@inpc12>

Bob et al,
I have the necessary info at home and will send you a message tonight.

Regards,
Dale
On Feb 27, 7:22am, Brian Carling wrote:

> Subject: Museums and MFG stuff (from the GLOWBUGS group)
> On 26 Feb 97 at 5:07, BOB DUCKWORTH spoke about MFG stuff and said:
>
> > For your inspiration & enlightenment:
> >
> > On Wed, 19 Feb 97 13:53:14 GMT, dallen@melpar.esys.com (Dale Allen)
> > inscribed eloquently:
> >
> > |>Just to add my $.02, Ken Rad (Tube mfr. in KY sold out to GE who
> > |>sold out to MPD) facilities were closed in May 1993 when MPD made
> > |>the last 6550. MPD agrred to keep the equipment in storage until
> > |>a museum could be built by the city.
> > |>   Dale
> >
> > (Now who will build the museum? - Bry)
> >
> >
> > If they will put it in Atlanta, I've just finished setting up
> > a 5013(c) and am going to negotiate a lease on 11,000 sq ft
> > today! I only need about 1/2 of the space. Who to call????
> > If this stuff can be put back to work?????
> >
> > -bob
> >
>
> Contact Dale Allen! His address is right there in the message above!
> Maybe he will know!
>
> Bry
> **
> *** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *
> ** E-mail to: bry@mnsinc.com   *
> *** See the great ham radio resources at: *
> ** http://www.mnsinc.com/bry/   *
> **
>
>
>-- End of excerpt from Brian Carling

--

Dale Allen
dallen@fallschurch.esys.com

Date: Thu, 27 Feb 1997 08:56:01 -0700
From: jeffd@coriolis.com (Jeff Duntemann)
To: glowbugs@theporch.com
Subject: Magnet wire by the (small) spool
Message-ID: <3.0.32.19970227084720.009eb290@165.247.88.2>

Hi gang--

In my most recent order from Alltronics was an ad sheet of theirs offering magnet wire by the 1/4 pound spool. The wire is described as low-temperature (105 degrees C) NEMA STD MW-1-c (whatever that all means) and is available in the following gauges:

18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 34, 36, 38, 40

Most of the spools are offered at $4.50 or $5. The finer gauges are a little more expensive, but then again I rarely use wire finer than #30. (And I have a 1 pound spool of #34 on the shelf, with which I wind anything that needs fine wire. It will doubtless last me my next several incarnations...)

Alltronics is a great place, run by a long-time ham named Dennis. (Not sure of his call or last name.) If you're in San Jose his shop on Zanker Road is a must-see. Also, visit his Web site. He also has a BBS (remember those?) at 408-943-0622, running 14.4 Kb, N/8/1.

Alltronics
2300 Zanker Road
San Jose CA 95131-1114
408-943-9773
408-943-9776 FAX
www.alltronics.com

He has a lot of tubes in his catalog, prices comparable to AES, also some common tube sockets and a handful of other glowbug odds-n-ends. Mostly it's modern solid-state surplus.

--73--

--Jeff Duntemann KG7JF
  Scottsdale, Arizona

Date: Thu, 27 Feb 1997 07:20:08 -1000
From: Jeffrey Herman <jeffreyh@hawaii.edu>

To: bry@mnsinc.com
Subject: Re: Going to a boring social function? Take a schematic along..
Message-ID: <Pine.GSO.3.93.970227071605.824B-100000@uhunix3>

On Wed, 26 Feb 1997, Brian Carling wrote:
>
> And of course the GREAT thing about the HW-16 is that it has QSK!
> Something I WISH my FT-840 had!

I spent a number of years manually emulating a T-R switch! I'd have
to switch/unclip/clip/retune/adjust-RF-gain/etc to go from T to R.

I've earned my privilege to now have QSK!!!

Jeff KH2PZ

Date: Thu, 27 Feb 1997 13:51:27 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: Jeffrey Herman <jeffreyh@hawaii.edu>, glowbugs@theporch.com
Subject: Re: Going to a boring social function? Take a schematic alo
Message-ID: <199702271850.NAA14642@news2.mnsinc.com>

On 27 Feb 97 at 7:20, Jeffrey Herman spoke about Re: Going to a
boring social functi and said:

> I spent a number of years manually emulating a T-R switch! I'd have
> to switch/unclip/clip/retune/adjust-RF-gain/etc to go from T to R.
>
> I've earned my privilege to now have QSK!!!
>
> Jeff KH2PZ

He he - yeah - well I know what you mean, us homebrewers tend to wind
up with temporary lash-ups that require you to throw 3 or 4 swtiches
turn the A.F. gain up or down etc. etc.! Really makes operating
uncomfortable!

But think how much FUN we are having, he he he he he he he!
****
*** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com   *
*** See the great ham radio resources at: *
** http://www.mnsinc.com/bry/   *
****

Date: Thu, 27 Feb 1997 17:09:05 -0500 (EST)
From: rdkeys@csemail.cropsci.ncsu.edu
To: glowbugs@theporch.com, boatanchors@theporch.com
Cc: rdkeys@csemail.cropsci.ncsu.edu ()
Subject: More Regenerator Musings.....
Message-ID: <9702272209.AA105069@csemail.cropsci.ncsu.edu>

>> Bob writes: (As he muses thoughtfully amidst the ethers of the net.....)
>> (Yeah, I know, me waxes musingly and sometimes wid tongue in cheek.....)

>"I did get some difference when I used a 6V6 vs something
>like the 24 or 6SK7, in that the current through the circuits
>was higher giving higher effective gain at low voltages from
>the beam pentodes as compared to the normal RF pentodes.

>H.M.: ah, so that's why a power tube is used in the detector
>slot. i first read abt that use years ago in Modern Radio Labs.
>literature & thot it was a weird idea, but this explains it.

I am not why certain power tubes might have been used in detector
service other then possibly as ``power detectors'' where there is
a fair amount of current flowing in the detector to get less
square-law detection. In regenerator service, at low voltages,
a tube with more current capability at zero bias will usually give
more headphone current, and hence a louder sound, if it is matched
properly to the audio transformer impedances and headphone impedances.
Via choke coupling, this works pretty well on things like the 6V6/6L6
tubes. Hence, with more plate current flowing, more power is transferred
to the tin cans, and it sounds a bit louder. In the detector, the net
oscillation present is stronger at lower plate voltages, and the net
heterodyning on strong signals is much better. The difference is very marked
at 12 or 24 volts on the plates, but tapers off as the plate voltages are
increased. Ghirardi has a good description of power detectors. Remember
that the R-392 used LV tricks to make a 28vdc plate supply work well (and it
does work very well). There was an article in Radio-TV News or somesuch
like that or maybe in one of the early Radiotron Designers Handbooks about
using tubes on low voltage plate supplies, and that may provide some info.
It was done for aircraft 28v service after the war, and may have had some
basis in the infamous cubie boxes used on LF beacon service in aircraft
(remember the BC-1206 or whatever it was that was a 3 or so tuber superhet
on 200-400khz and the RCA AVR-15 recievers that were similar).

>"The best ....regen detector I ever found was that darn '24,

>H.M.: i wonder why that would be? i'll have to remember to dig
>out the '24 specs and graphs & have a look.

I dunno exactly why. I always took it to be a function of the filament emission at low plate voltages. The 24 seems to have a tremendous reserve of filament emission, as does the 27. Probably due to overkill in filament design in that early era. Also, it was an easy to tame detector in my hands. Alas, after I got down to only one 24 and one 27 left, I started subbing 76's, and running triodes more often. The 76 is a dropin 6 volt replacement for the 27. The 27 is a strong detector and one or two step regenerator, on its own.

>"I find choke coupling gives me easier parts procurement
>than transformer coupling since I rarely find good audio
>coupling chokes anymore

>H.M.: another possible source of hi-inductance windings is
>possibly in carbon micorphone to audio grid transformers,
>altho this maybe unrealistic to expect to find many of these
>around any more. also possibly using the HV winding of small
>low current but hi-voltage power transformers.

Excellent idea! I have been grabbing all those little toy looking teensie weensie microphone transformers that are 600 ohm input to 20 or 40 K ohms grid and using them for output transformers. They work very well in that mode to 600 ohm tin cans. There are quite a few of those around in 50's surplus and Nam era surplus. I got a bunch out of a TRC-7 vhf repeater box that I built a 28v 100a power supply into, and wondered what to do with all the little plugin line coupling units. They each have two exotic pushbutton binding posts AND some small audio transformers and chokes that are ideal for regenerators. Also, about the same time there seemed to be a lot of tube rtty or phone line stuff that used small chokes and transformers similarly, and that is a good source. These are usually the chokes and transformers that sift to the bottom of the boxes under the hamfest tables, that noone seems to use for anything. I tried the small power transformers, and that worked pretty well too. A 110/360 vac or more step up ratio works fine as a grid to grid transformer in the usual low voltage audio regenerator interstage transformer mode. Take a 12/110 volt as the audio output transformer to 600 ohm or 8 ohm fones, and that works pretty well. The best, though, seems to be a 10 h choke and a 0.68ufd coupling cap to the audio stage or to the tin cans. I have not found anything any better than that other than the real audio interstage transformers and output transformers which are not very common anymore.

>"I have not used recent battery tubes such as the 1 volt series

>so I can't compare those to others directly, in regen use.
>In the battery tubes I do use, such as the '01A's and '30's, I find
>they tend to be a bit noiser due to filament grumblings during
>use compared to an indirectly heated cathode tube, so I would
>probably stick to an indirectly heated cathode tube for the most
>serious regens.

>H.M.: do you mean microphonics? also on the 1-v tubes, altho
>the maximum transconductance is much lower than the 6-v
>heater-cathode types, as you point out, this may not be that
>important. it seems to me that the shortwave receivers i have
>used, that used these tubes, were noticeably more stable than
>receivers using the usual 6SA7, 6BE6, etc. (i mean stabililty
>due to factors other than pulling by strong signals.) i would
>account for this by the much lower heat generated by the 1-v
>tubes.

Well, not really microphonics, although all regenerators will suffer from microphonics --- you get used to that. What I mean is the sort of rumbling that occurs at odd times that seems more like a filament burp, where the tube seems to gurgle a bit with a slight rumble, for about 2-3 seconds then quiets down again. The '01A and '30 are a bit prone to doing this, but the usual AC filament tubes rarely do it (but I have found some odd tubes that I assumed were just old or weak that had that tendency even in AC tubes). I have no good explanation for what is going on when that happens. I interpret it to be filament emission inconsistencies probably due to non-uniform heating. The temperature of a filament varies along its length due to end effects, mounting point effects, etc., and that probably has something to do with it. Other than that, I dunno. I am wondering if slight variation in battery current flow due to chemical burps in the batteries I am using might alter the instantaneous filament emission and be partially responsible for that effect. But it tends to occur regardless of the particular battery I am using, so again..... dunno exactly.

I did notice that the filamentary tubes were more prone to drift a few cycles than the indirectly heated types. I assume that that is due to slight filament temperature inconsistencies under heating. The AC types will drift about 1-2 kc as they warm up, but the filamentary ones seem to drift only about half a kc, and then settle down except for the burps mentioned above. That would support the notion that the battery tubes might be more stable because of less element heating changes over time. Also, I like to run the battery tubes lower in voltage than most folks seem to prefer. They last longer, and are actually a bit quieter and generate less heat then. On the '30's that is about 1.75 volts or so. On the '01A's that is about 4.25 volts.

It might be fun to compare some of the small drain tubes like the 6AD4

with the '01A or '30 to see if there is much difference in heating drift. Sounds like I need to wire up another adapter for those little Motorola FM tubettes......(:+}}..... I still run a QRP Dispatcher with 6AD4's on the local repeater, when I am occasionally known to open the gaping kazoo on the air. They were fairly late-model battery tubes and it might be interesting to compare those with the early tubes. That particular comparison of the 6AD4 I have not done, yet.   I also have some electrometer tubes (submini-mini things using 1.0 volt filaments) that might be fun to try. Some of the spectrophotometer folks used them for replacements of the early Beckman DU exotic special '32 type tubes.

>also, i read in a past edition of "Lowfers Reference Manual"
>(or similar title..) by Ken Cornell (i believe) where he stated
>that the "2-ended" tubes (i.e. ones with a plate cap) yielded
>regen detectors that went more smoothly into oscillation. any
>opinion on this Bob? also, if true, whyso? would it be simply
>due to the better isolation between plate and grid circuits?
>(i.e. lower stray capacitive coupling?)

The theory, as I understand it, suggests that the dualended tubes are more isolating, and have less grid/plate capacities due to the top cap takeoff of grid away from the plate. In practice, though, I have not found that to be of any merit other than a constructional feature that makes it easy to shield the detector plate and the audio circuits from the grid tank circuits. That is good for stability in superhets and the early octal rf tubes were done that way to specifically allow the spatial separation of grid and plate leads on rf and if cans (typically the 6K7 and 6K7 sort of tube). On regenerators, you want to have that oscillation and feedback occur. I have never found any effect like that for ``smoothness'' of regeneration. The smoothness or ease at which a tube goes into regeneration is dependent strictly upon the plate voltage (or screen voltages for tetrodes and pentodes) and the ease of control of feedback. Of all the methods I have tried over the years, and I have tried everything listed in the 30's handbooks (about 6 different methods, basically), plain old condenser throttle control works best, hands down, with screen voltage control second (on tetrodes and pentodes). Regenerative detectors work best and are most controllable at low voltage. The control of regeneration is much more fluid at low voltages always. In the throttle control mode, most detectors operate at less than 48vdc. The trick is getting the throttle to come in at about 200pf of bypass. Anything less than that and the transition into oscillation is harsh and you tend to get a thump. I target my coils for sufficient feedback at a given voltage to give about 200-250pf for the edge of oscillation. That always gives a smooth transition between the edge of oscillation and non-oscillation. The usual 100pf controls most schematics show are just insufficient to give sensitive control with smoothness. I use a 250pf cap minimum or a 365pf cap if I have one as the throttle control. This is easy to test if you have some means of varying the feedback by

setting the coupling in the tickler via a variometer of some sort.
If you set the feedback to oscillate at 50pf it is very harsh and difficult
to control. If you set the feedback to oscillate at 250pf it is very fluid
and easy to precisely control right on the edge of regeneration. This is
how I can submit that one can hear the sidebands get clipped off a signal
as you ease the detector into regeneration gently and slowly. With the
usual sort of control, that point goes by very quickly and most folks
miss it and think that the regen detector is a poorly selective beastie
wide as a barn door. ..... it ain't, properly done.

When you are using capacitive bypasses, you MUST have a good RF choke
in the line between the plate bypass or throttle and the coupling
network into the audio stage. I always use at least a 2.5mh rf choke,
and sometimes up to about 5 mh, but never less than that. When you use
screen voltage control, likewise use a good heavy bypass (and an RF
choke will usually help, but is not always needed), and then design the
detector to go into oscillation at no more than 24 volts on the screen.
IF the screen voltage is higher than that it can be rather harsh when
going into oscillation.   The RAL uses 20v on the screen as its native
oscillation point, even with 90 volts on the plate. Also, the detector
in the RAL is ONLY at 90 volts on the plate, not 180 or 250 volts.
That makes a detector too hard to control and not smooth. These seem
to be points that many of the post WWII regenerator designers have not
been prone to worry about.   If one does not worry a bit about these
things, then you don't end up with a good solid regenerator design.
Maybe that is why so many folks poo poo the usual regenerators --- they
just are not designed quite right, ... yet.

That is all I have time for now..... back to beanies and test tubies
and the white frock coat mindeset.....(:+\\.....

73/ZUT DE NA4G/Bob UP

Date: Thu, 27 Feb 1997 15:31:47 -0600
From: Conard Murray <ws4s@InfoAve.Net>
To: rdkeys@csemail.cropsci.ncsu.edu,
Subject: Re: More Regenerator Musings.....
Message-ID: <2.2.32.19970227213147.00a86a30@infoave.net>

At 02:58 PM 2/27/97 -0600, rdkeys@csemail.cropsci.ncsu.edu wrote:

>Well, not really microphonics, although all regenerators will suffer
>from microphonics --- you get used to that. What I mean is the sort
>of rumbling that occurs at odd times that seems more like a filament

>burp, where the tube seems to gurgle a bit with a slight rumble, for
>about 2-3 seconds then quiets down again.

I think this is a function of the detector being exposed to the stuff
broadcast on the 'domestic' SW stations. Try a bandstop filter with 180+ dB
of isolation between 3.2. and 3.4 MHz. :^)

>Also, the detector
>in the RAL is ONLY at 90 volts on the plate, not 180 or 250 volts.
>That makes a detector too hard to control and not smooth. These seem
>to be points that many of the post WWII regenerator designers have not
>been prone to worry about.

I think that high voltage operation is a function of new-fangled
transformer-coupled audio output amps .... with the phones in series with
the HV supply and the plate of the audio tube I feel a lot better with 45 or
90 volts in there versus 250 volts going around my noggin!

Enjoy!
73 and ZUT!
de Conard WS4S
.-.
. Conard Murray WS4S   Glowbugs listowner .
. 217 Dyer Avenue   ws4s@infoave.net .
.   Cookeville, TN 38501 615-526-4093   .
.   <>< Wise men still seek Him ><>   .
.   QRP-L # 993   .
.-.

Date: Thu, 27 Feb 1997 12:48:34 +0000
From: Steve Simpson <Steve@chubs.demon.co.uk>
To: bry@mail1.mnsinc.com
Cc: Multiple recipients of list <glowbugs@theporch.com>
Subject: Re: Going to a boring social function? Take a schematic along..
Message-ID: <zNFnKKAiKYFzEwaK@chubs.demon.co.uk>

In message <199702271218.HAA22463@news2.mnsinc.com>, Brian Carling
<bry@mail1.mnsinc.com> writes
>
>> After those hours studying its schematic, I got to know my HW-16
>> a bit better Sunday night. Sure makes a radio more fun to operate
>> when you know its "insides" almost by heart.
>
>And of course the GREAT thing about the HW-16 is that it has QSK!
>Something I WISH my FT-840 had!

I think my Missus would kill me if I ever did that. much as I'd like to
sometimes when we go out with "Friends". Hers not mine!!
--
Steve "Chubby" Simpson
Radio/Night Club D.J.
Steve@chubs.demon.co.uk
Visit Radio World -
HTTP://www.chubs.demon.co.uk

End of GLOWBUGS Digest 459
****